

FIG. 3

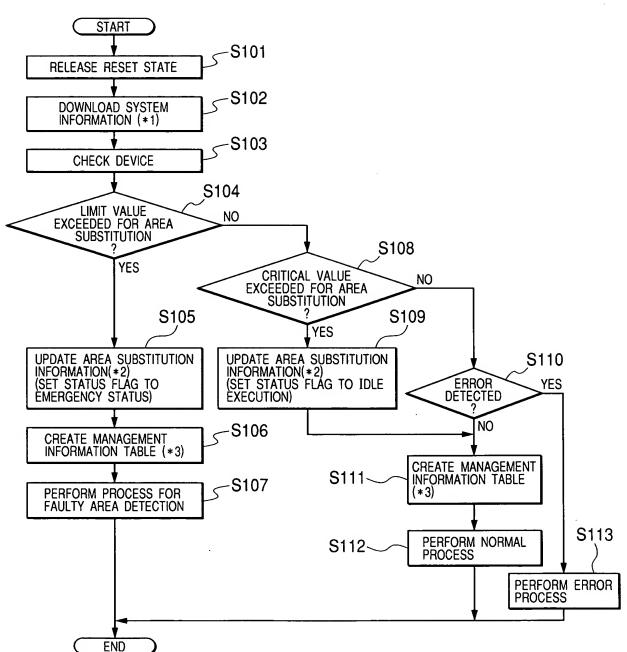
FIG. 4

[SUBSTITUTION FACTOR]	SEE FIG. 5	[SUBSTITUTION ORIGIN]	PHYSICAL AREA NUMBER OF AREA SUBSTITUTION ORIGIN		[Substitution destination] PHYSICAL AREA NUMBER OF AREA SUBSTITITION DESTINATION					
	21h: EMERGENT STATE OCCURRED (LIMIT EXCEEDED) 31h: EMERGENT STATE OCCURRED (LIMIT EXCEEDED)	after being used as a substitute area	81h: IDLE OCCURRED (CRITICAL VALUE EXCEEDED)	82h: Idle in Process; substitution origin	83h: IDLE IN PROCESS; SUBSTITUTION DESTINATION	C1h: IDLE OCCURRED (CRITICAL VALUE EXCEEDED) AFTER BEING USED AS A SUBSTITUTE AREA	C2h: IDLE IN PROCESS AFTER BEING USED AS A SUBSTITUTE AREA; SUBSTITUTION ORIGIN	C3h: IDLE IN PROCESS AFTER BEING USED AS A SUBSTITUTE AREA; SUBSTITUTION DESTINATION		FFh: SUBSTITUTE AREA EXHAUSTED
STATUS FLAGI	00h: NORMAL (UNUSED) 01h: NORMAL (USED)	08h: AREA SUBSTITUTION COMPLETED; SUBSTITUTION ORIGIN	09h: AREA SUBSTITUTION COMPLETED; SUBSTITUTION DESTINATION	0Ah: AREA SUBSTITUTION COMPLETED AFTER BEING USED AS A SUBSTITUTE AREA; SUBSTITUTION ORIGIN	0Bh: Area substitution completed after Being used as a substitute area; Substitution destination	OCh: IDLE COMPLETED; SUBSTITUTION ORIGIN	0Dh: IDLE COMPLETED; SUBSTITUTION DESTINATION	0Eh: IDLE COMPLETED AFTER BEING USED AS A SUBSTITUTE AREA; SUBSTITUTION ORIGIN	0Fh: IDLE COMPLETED AFTER BEING USED AS A SUBSTITUTE AREA; SUBSTITUTION DESTINATION	

FIG. 5

AREA	AREA SUBSTITUTION FACTOR	SUBSTITUTION FACTOR VALUE	LIMIT VALUE	CRITICAL VALUE	RETRY REQUIRED ?
ns	SUBSTITUTE FREE AREA	1h	0	20 BLOCKS OR LESS	
	SUCCESSIVE PROGRAM ERROR	2h	260 TIMES OR MORE	10 TIMES OR MORE	REQUIRED
SUCCESSIVE RETRY ERROR	EXCESSIVE WRITE ERROR	3h	260 TIMES OR MORE	10 TIMES OR MORE	REQUIRED
	RETENTION FAILURE (VERIFY CHECK ERROR)	4h	260 TIMES OR MORE	10 TIMES OR MORE	REQUIRED
ECC UNCORRECTABLE ERROR	TABLE ERROR AT RETENTION FAILURE	Sh .	ONCE		1
DEVICE/MANUFACTURE CODE	ACTURE CODE UNREADABLE ERROR	6h	ONCE		1
	ERASURE/PROGRAM TIME	7h	100ms	10ms	1
	NUMBER OF ERASURES	8h	1M TIMES	300K TIMES	1
PHYSICAL AMOUNT	READ CURRENT VALUE	9h	1.2A OR MORE	700mA OR MORE	
	WRITE CURRENT VALUE	Ah	1.5A OR MORE	1.0A OR MORE	1
	EXTERNALLY SUPPLIED POWER/CURRENT VALUE	Bh	3A OR MORE	1.5A OR MORE	1





- (*1): DOWNLOAD THE SYSTEM INFORMATION CONTAINING AREA SUBSTITUTION INFORMATION TO THE WORK AREA.

 REFERENCE THE AREA SUBSTITUTION INFORMATION TO AVOID A FAULTY CHIP, AND DOWNLOAD THE SYSTEM INFORMATION
- (*2): UPDATE ONLY DATA IN THE WORK AREA
- (*3): REFERENCE THE AREA SUBSTITUTION INFORMATION TO AVOID A FAULTY AREA, AND CREATE A TABLE BASED ON THE MANAGEMENT AREA INFORMATION IN THE MEMORY

AREA NUMBER (PHYSICAL) No.5 STATUS SUBSTITUTION SUBSTITUTION DESTINATION PLAGE FACTOR ORIGIN ١ 1 엵 各 ਨੇ 운 ١ ı ලි සි 34 유 뜐 AREA NUMBER (PHYSICAL) No.4 STATUS SUBSTITUTION SUBSTITUTION SUBSTITUTION FLAG FACTOR ORIGIN DESTINATION দ্ৰ 5 ᄯ 듬 9 등 등 등 1 ₽ 두 두 두 1 ١ 등 ව් ਨ ਨ 띖 띖 응 AREA NUMBER (PHYSICAL) No.3 STATUS SUBSTITUTION SUBSTITUTION SUBSTITUTION FLAG FACTOR ORIGIN DESTINATION ١ 1 ١ I 1 등 G AREA NUMBER (PHYSICAL) No.2 STATUS SUBSTITUTION SUBSTITUTION BESTIMTION FLAG FACTOR ١ I 1 1 9 H 듐 STATUS SUBSTITUTION SUBSTITUTION SUBSTITUTION FLAG FACTOR ORIGIN AREA NUMBER (PHYSICAL) No.1 8 各 l 1 ഹ 5 ટ્ટ I AFTER AREA SUBSTITUTION FROM -- 08h No. 1 TO No. 4 01h 21h SUBSTITUTE AREAS 08h EXHAUSTED EMERGENCY STATUS OCCURRED AT No. 1 (ECC UNCORRECTABLE ... ERROR AT RETENTION FAILURE) AFTER IDLE EXECUTION FROM - -No. 4 TO No. 5 EMERGENCY STATUS OCCURRED AT No. 5 (ECC UNCORRECTABLE ---ERROR AT RETENTION FAILURE) IDLE EXECUTION IN PROCESS FROM-No. 4 TO No. 5 IDLE EXECUTED
AT No. 4 (FREE
SUBSTITUTE AREA)

FIG. 7

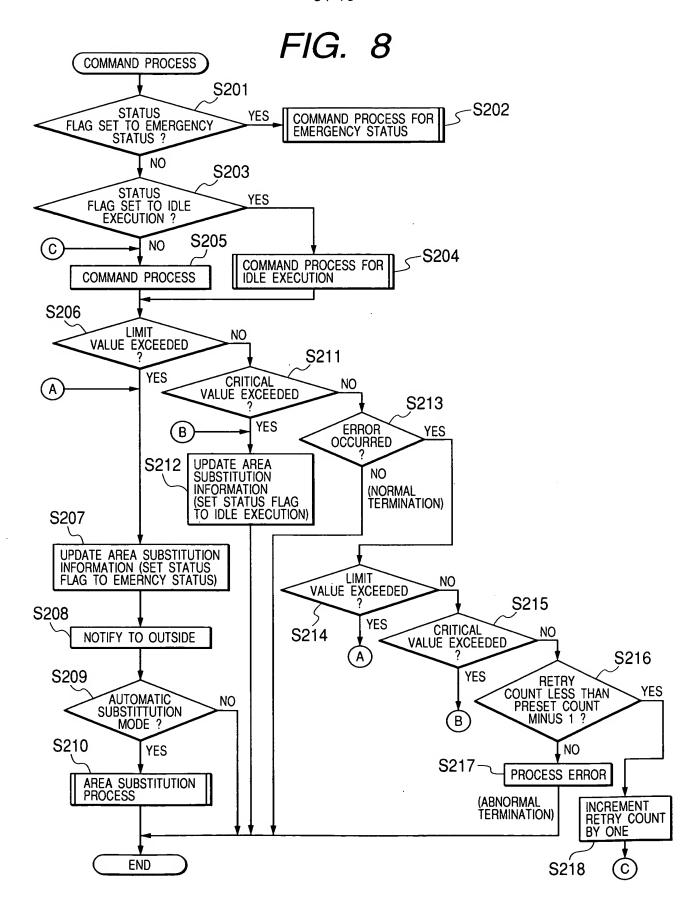


FIG. 9

4 4)

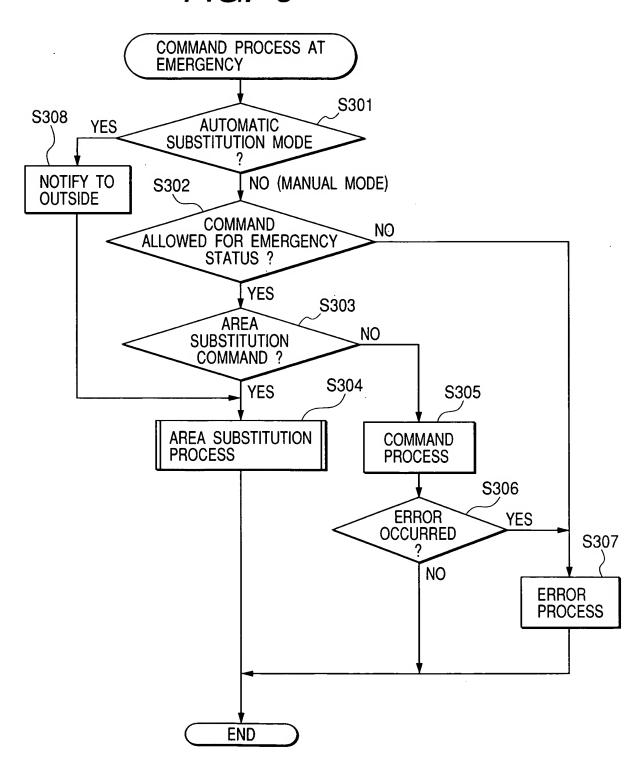


FIG. 10

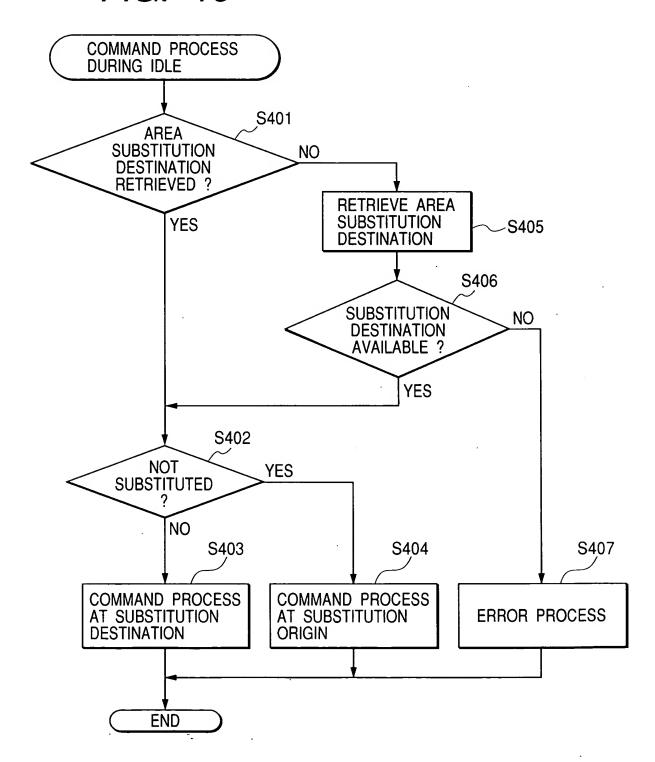
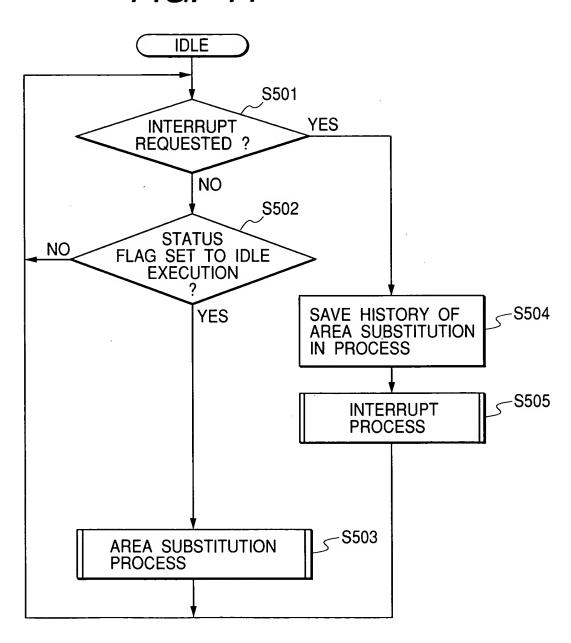
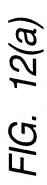
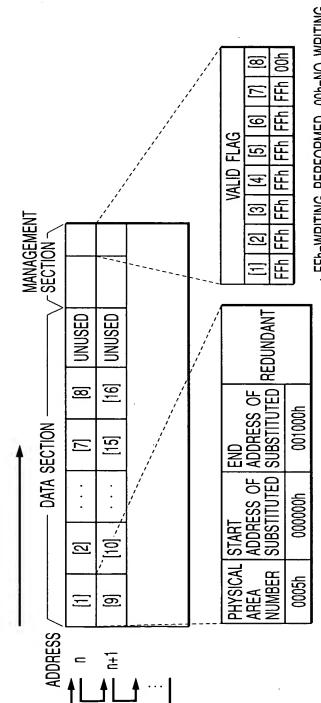


FIG. 11





4



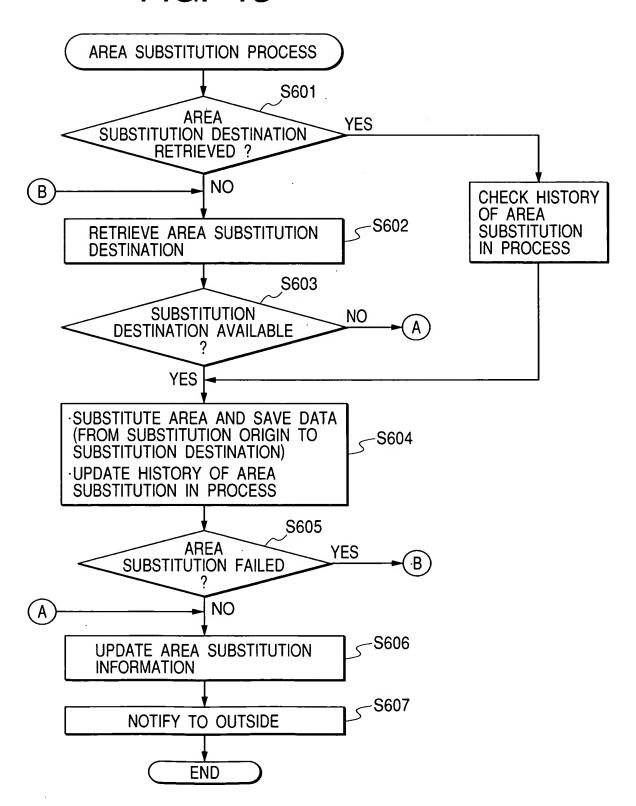
· FFh=WRITING PERFORMED, 00h=NO WRITING PERFORMED · THE LAST TABLE WHERE FFh IS WRITTEN IS VALID DATA IN THIS EXAMPLE, TABLE (7) IS VALID DATA

· AN OPERATION OF WRITING TABLE (9) WRITES DATA (INCLUDING VALID FLAGS) IN TABLE (9), AND THEN CLEARS DATA AT ADDRESS "n"

FIG. 12(b)

-	PHYSICAL	START	END
VALID	AREA	ADDRESS OF	ADDRESS OF
IABLE	NUMBER	SUBSTITUTED	SUBSTITUTED
0007h	45000	4000000	4000100

FIG. 13



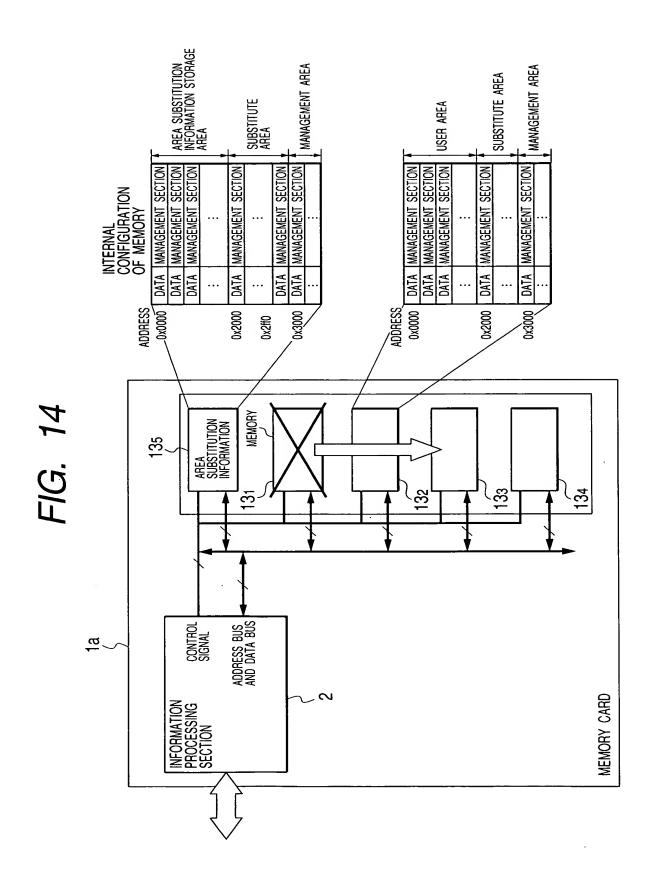


FIG. 15

